

Discovery of the Brachelytrous Cerambycid Genus *Necydalis* (Coleoptera, Cerambycidae) from Northeastern Laos, with Descriptions of Four New Species

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Abstract Members of the genus *Necydalis* are recorded for the first time from Laos and four new species are described based on the materials collected by our recent field surveys. *Necydalis atricornis* and *N. montipanus* spp. nov. are new members of the *N. nanshanensis* group; the former species has relationship with *N. nanshanensis* KUSAMA from Taiwan and its related species, and the latter with *N. shinborii* TAKAKUWA et NIISATO from northern Vietnam. *Necydalis wakaharai* sp. nov. is a unique species belonging to the *N. esakii* group and may be closest to *N. kumei* TAKAKUWA from northern Thailand. These three new species belong to the subgenus *Necydalis* s. str. *Necydalis concolor* sp. nov. is the most unexpected discovery of the four new species. It is not only a peculiar species in having the entirely black body but also the first representative of the subgenus *Necydalisca* PLAVILSTSHIKOV from Indochina.

Introduction

Laos is not only an inland country in Indochina but also rich in primary forests. Although the cerambycid fauna has been clarified fairly well by GRESSITT, RONDON and BREUNING (1970), there still remain scientifically unexplored areas along the eastern and northeastern borders of the country. Unknown necydaline species have been expected to be found from those forests, since about a dozen species of the genus were recently recorded from the neighboring countries.

In the spring to early summer of the last three years, Japanese coleopterologists including us have repeatedly visited the Phu Pan Mountains in Houaphan Province of northeastern Laos for field survey, which are an isolated mountain group lying near the borders of Vietnam. We were able to collect an enormous number of cerambycid specimens from the mountain, and found some *Necydalis* species among the collection. The *Necydalis* species examined were classified into four undescribed species belonging to

two subgenera, *Necydalis* s. str. and *Necydalisca* PLAVILSTSHIKOV, and also the former subgenus includes three species of two species-groups, namely two of the *N. nanshanensis* group and the other of the *N. esakii* group. The remaining one is a member of the subgenus *Necydalisca* and is the first representative of the subgenus in Indochina. In the following lines we will introduce them into science.

Abbreviation. The following abbreviations are used in the description and the depository of the type specimens: HE—maximum width of head across eyes, FL—length of frons, FB—basal width of frons, FA—apical width of frons, PL—length of pronotum; PW—maximum width of pronotum across lateral tubercles, PA—apical width of pronotum; PB—basal width of pronotum, EL—length of elytron, EW—humeral width of elytra, M—arithmetic mean; NSMT—National Science Museum (Nat. Hist.), Tokyo; EUEL—Entomological Laboratory, Ehime University, Matsuyama; TN—T. NIISATO's private collection.

Necydalis (Necydalis) atricornis NIISATO et N. OHBAYASHI, sp. nov.

(Figs. 1a, 2a, 3 & 5a)

Medium-sized species belonging to the *N. nanshanensis* group and is characterized by the entirely black antennae. It has a close relationship to *N. nanshanensis* KUSAMA from Taiwan and its relatives in the short elytra with completely rounded apices.

Male. Colour entirely black including head, antennae and thoraces, brown in abdomen and legs, moderately shiny; head black, brownish in mouthpart except for almost black mandibles and yellow maxillae, apical margin of clypeus narrowly brown; antennae entirely black, slightly shiny in basal four segments and mat on the remainders; thoraces including scutellum black, moderately shiny on pronotum; elytra brown, rather widely bordered in black both on external and sutural margins, raised areas in apical fifth also infusate; hind wings translucent brown, slightly infusate distally; abdomen brown, largely black in the middle of ventrite 1 except for apical part, sometimes black in basal part of ventrite 2, weakly shiny; legs brown, black in coxae, infusate on dorsum of fore and mid tarsi, apical halves or so of fore and mid tibiae, and apical part of hind tibia, hind tarsus yellow.

Head relatively voluminous, though slightly narrower or nearly as wide as the maximum width of pronotum, closely and somewhat rugosely punctured, densely clothed with light yellow pubescence, though thinly pubescent on occiput and vertex, HW/PA 1.16–1.22 (M 1.20), HW/PW 0.91–1.00 (M 0.95); frons quadrate, quite parallel-sided, gently raised at sides, declivous towards a fine median longitudinal furrow,

Fig. 1. New *Necydalis* species from northeastern Laos. — a, *N. (Necydalis) atricornis* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pagan (Mt.), holotype ♂; b, *N. (N.) montipanus* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pan (Mt.), holotype ♂; c, *N. (N.) wakaharai* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pan (Mt.), holotype ♀; d, *N. (Necydalisca) concolor* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pan (Mt.), holotype ♀.



a



b



c



d

which runs from apical margin to posterior part of vertex, strongly rugosely punctured, FL/FB 0.75–0.80 (M 0.78), FB/FA 1.00–1.09 (M 1.05); clypeus with strongly transverse apical lobe, truncate in margin, hardly raised, sparsely provided with small punctures, basal lobe semicircular, fairly short, coarsely rugged, fronto-clypeal suture strongly arcuate, relatively shallow, weakly vermiculate; mandibles short, gently sinuate along external margins; genae rather short, slightly longer than a half the depth of lower eye-lobes, almost parallel in frontal view; tempora thick, roundly produced laterad, slightly exceeding eyes, with truncate posterior margin; occiput gently raised; eyes rather weakly prominent. Antennae relatively long, 0.55–0.60 times as long as body, almost reaching apex of ventrite 4, moderately stout, more or less flattened and slightly serrate apicad in segments 5–9, thinly clothed with brown pubescence on segments 1–4, and densely with minute ones on the remaining segments; scape short, gently arcuate and weakly broadened apicad, a little shorter than segment 3, with dense small punctures, though almost smooth in apical part, segments 3 and 4 moderately thickened apicad, indistinctly punctured, the latter 3/5–7/10 the length of the former, segments 5–7 nearly equal in length, terminal segment moderately arcuate, blunt at the extremity.

Pronotum short and fairly broad, slightly longer than the maximum width, hardly contracted to both apex and base, rather weakly constricted before and behind lateral swellings, moderately convex in basal 3/10, PL/PA 1.31–1.43 (M 1.39), PL/PW 1.08–1.17 (M 1.09), PB/PA 1.14–1.27 (M 1.19), PW/EW 0.91–0.98 (M 0.94), PL/EL 1.06–1.16 (M 1.10); base almost transversely truncate, narrowly but distinctly marginate; sides gently arcuate in apical fourth and weakly so in basal third, provided with very weak swellings at a level between apical and basal third; disc moderately convex in basal 3/4 and forming a large callosity with a vestigial median line, transversely raised behind apex and before base, the latter of which is slightly produced forwards at middle; surface provided with coarse punctures except for raised areas which are very sparsely or shallowly punctured, usually provided with transverse furrows near apex and base, almost smooth near middle of callosity, sparsely clothed with light yellow hairs at sides. Scutellum trapeziform, densely clothed with golden yellow pubescence.

Elytra slightly transverse, always wider than long, moderately shorter than pronotum, barely reaching apical seventh of metepisterna, widest at humeri, distinctly exposing the sides of meso- and metathoraces, EL/EW 0.90–0.96 (M 0.93); sides with humeri distinctly projected forwards, gently arcuate in basal 3/10, then slightly sinuately narrowed to completely rounded apices; suture completely conjoined in basal fourth, then narrowly dehiscent to apical fourth, and strongly arcuately so towards the apices; disc weakly convex and somewhat uneven, longitudinally depressed near suture except for apical sixth which is strongly thickened, narrowly depressed along basal 2/5 of external margins, hardly declivous near bases, provided with large punctures except for shagreened apical raised area and sparsely punctured humeri, very thinly pale pubescent, partly with golden yellow pubescence at inner parts of apical raised areas. Hind wings reaching base of abdominal tergite 6.

Prosternum hardly convex, provided with a few distinct furrows in apical 2/5. Meso- and metathoraces moderately voluminous, clothed with light yellow hairs, partly with dense golden yellow pubescence on mesepimeron, at apex of metepisternum and apical side of metasternum; mesosternum coarsely and somewhat rugosely punctured, with mesosternal process strongly vertical towards apex; metasternum markedly convex, arcuately concave along posterior margins of mid coxae, evenly shallowly punctured near the middle, heavily so at sides; metepisternum with coarse punctures.

Abdomen elongate and slender, nearly 0.7 times as long as body, shiny on ventrites 1–3, slightly shagreened on ventrites 3–5, provided with a few minute punctures on ventrite 1, thinly pale pubescent; ventrites 1 and 2 gently emarginate at sides and slightly thickened apicad, the former almost 1.5 times as long as the latter, though slightly variable in length according to individuals, ventrite 3 almost as in the preceding species in both shape and length, ventrite 4 markedly dilated apicad, with apex more than 1.5 times as wide as base, nearly as long as the preceding; ventrite 5 with sides straightly dilated to apical fifth, then somewhat suddenly narrowed to the rounded apical corner, rather deeply triangularly emarginate on apical margin, disc flattened near base, then longitudinally impressed near the middle, the impression gradually becoming deeper and wider towards the deep apical concavity in apical fifth whose basal margin is moderately arcuate. Tergite 8 1.3 times as long as basal width, with sides slightly arcuately narrowed in basal halves, then straightly convergent to completely rounded apex.

Legs long and slender, exceeding abdominal apex at base of first hind tarsal segment; hind femur moderately clavate in apical third, hind tibia weakly sinuate throughout and weakly dilated apicad; hind tarsus long, weakly thickened apicad, with first segment almost twice as long as the following two segments combined.

Median lobe slightly shorter than ventrite 5, slender even at the basal part, strongly narrowed apicad, weakly convex and arcuate in profile; dorsal plate almost straightly narrowed to apex which is narrowly truncate, exposing apical sixth of ventral plate in dorsal view; ventral plate narrowed as dorsal plate, though slightly emarginate near the middle, with apical part rather distinctly thickened in profile; median struts slender and rather long, a little more than a half the length of median lobe. Tegmen slightly longer than median lobe, slender, arcuate in profile; paramere thin, 5/12 the length of tegmen, with sides parallel in basal 4/5, slightly approximate in apical fifth, each lobe blunt cultriform in apical fifth, provided with irregular-sized seta in apical fourth and along inner margin.

Body length 23.5–26.0 mm.

Female. Unknown.

Type series. Holotype ♂, Phu Pakan (Mt.), 1,600 m in alt., Ban Saleui, Houaphan Province of NE. Laos, 6–V–2002, N. OHBAYASHI leg. (EUEL). Paratypes: 3 ♂♂, Phu Pan (Mt.), Ban Saleui, 2,000 m in alt., 5–10–V–2003, H. WAKAHARA leg. (EUEL); 1 ♂, same locality and collector as the preceding, 5–V–2002 (TN).

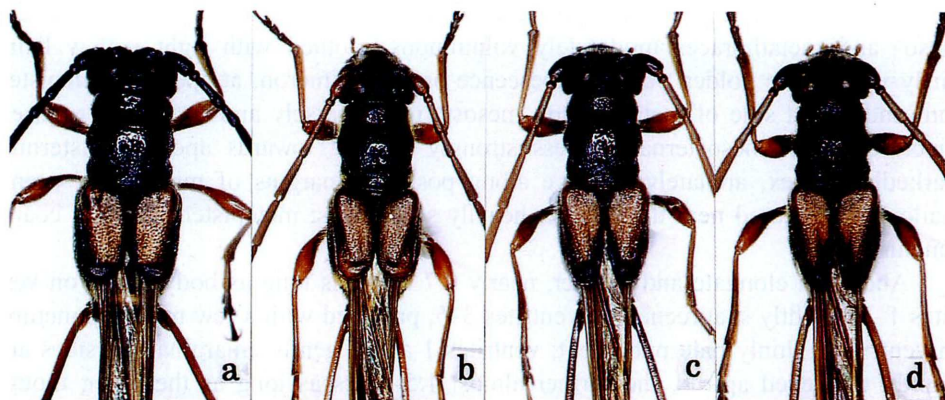


Fig. 2. Fore bodies of four species of the *Necydalis nanshanensis* group. — a, *N. (Necydalis) atricornis* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pakan (Mt.), NE. Laos, holotype; b, *N. (N.) nanshanensis* KUSAMA, from Nanshanchi, C. Taiwan; c, *N. (N.) montipanus* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pan (Mt.), NE. Laos, holotype; d, *N. (N.) shinborii* TAKAKUWA et NIISATO, from Mt. Tam Dao, N. Vietnam, paratype.

Distribution. NE. Laos.

Notes. *Necydalis atricornis* sp. nov. belongs to the *N. nanshanensis* group, and has closer relationship in the short elytra with completely rounded apices to *N. nanshanensis* KUSAMA from Taiwan, *N. alpinicola* NIISATO et N. OHBAYASHI, from northwestern Vietnam, *N. niisatoi* HOLZSCHUH from Sichuan and other related species. It is distinguished at first sight from such related species by the entirely black antennae.

Total five male specimens of this new species were collected from the peaks of Phu Pan (Mt.) and Phu Pakan (Mt.) near Ban Saleui (Village).

***Necydalis (Necydalis) montipanus* NIISATO et N. OHBAYASHI, sp. nov.**

(Figs. 1b, 2c, 4 & 5c)

Slender and medium-sized species related to *N. shinborii* of the *N. nanshanensis* group, but distinguished from it by the more slender body with longer antennae, the hardly convergent apical part of pronotum whose disc is rather sparsely punctured instead of close punctation, and also the different features of male last ventrite and genital organ.

Male. Colour entirely black in head and thoraces, brown in abdomen, legs and antennae except for their basal parts, moderately shiny; head black, brownish along margins of clypeus and most of mouthparts; antennae brown and matted in segments 5–11, black and shiny in scape, and more or less infuscate in dorsum of segments 2–4; thoraces including scutellum black, strongly shiny on pronotum; elytra brown, rather broadly infuscate on both external and sutural margin, weakly shiny; hind wings

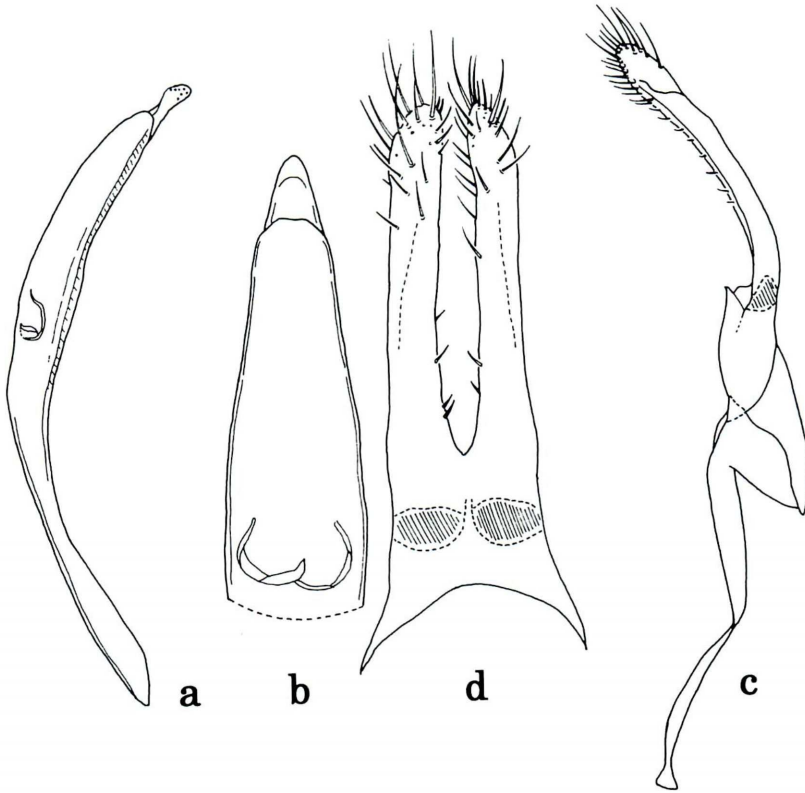


Fig. 3. Male genital organ of *Necydalis (Necydalis) atricornis* NISATO et N. OHBAYASHI, sp. nov., from Phu Pan (Mt.). — a, Median lobe in lateral view; b, ditto, apical part in dorsal view; c, tegmen in lateral view; d, ditto in dorsal view.

translucent dark brown; abdomen brown, largely black in middle of ventrite 1, near base of ventrite 2 and narrowly so at margins of ventrites 1–4; legs brown, black in coxae, trochanters, basal 2/3 of fore and mid femora, base of hind femur, infusate on dorsum of tarsi and apical halves of tibiae in fore and mid pairs, hind tarsus yellow.

Head not so voluminous, a little broader than the maximum width of pronotum, closely and strongly punctured, densely clothed with golden yellow pubescence, genae almost bare, HW/PA 1.28–1.29 (M 1.28), HW/PW 1.04–1.10 (M 1.07); frons quadrate, with sides quite parallel, gently raised, with a median longitudinal furrow distinct and deep, running from apical margin to base of occiput, FL/FB 0.77–0.80 (M 0.79), FB/FA 1.00; clypeus with apical lobe transverse trapezoidal, truncate in margin, slightly raised and moderately punctured except near apical margin, basal lobe semi-triangular, punctured as on apical lobe, fronto-clypeal suture deep and wide, deeper at the sides; mandibles relatively short, moderately arcuate, punctured on dorsum; genae short, nearly 2/5 the depth of lower eye-lobes, almost parallel in frontal view; tempora

not developed, weakly narrowed posteriad in dorsal view; occiput gently raised; eyes moderately prominent. Antennae relatively long, 0.56 times as long as body, almost reaching apex of ventrite 4, slightly stout, moderately flattened and weakly dilated apicad in segments 5–10, clothed with dense brown pubescence on scape and basal four segments, and more minute ones on the remaining segments; scape short, gently arcuate and weakly broadened apicad, a little shorter than segment 3, shallowly punctured, segments 3 and 4 weakly thickened apicad, somewhat rugged, the latter segment 3/4 the length of the former, segments 5–7 nearly equal in length, segment 5 usually the longest, terminal segment weakly arcuate, blunt at the extremity.

Pronotum relatively long, distinctly longer than the maximum width, hardly contracted to both apex and base, though distinctly constricted before and behind lateral swellings, moderately convex towards base, PL/PA 1.43–1.51 (M 1.47), PL/PW 1.22–1.23 (M 1.22), PB/PA 1.06–1.18 (M 1.12), PW/EW 0.86–0.91 (M 0.88), PL/EL 0.91–0.98 (M 0.94); base almost transversely truncate, very narrowly marginate, with oblong transverse punctures near margin; sides moderately arcuate in basal fifth, with gradually raised arcuate swellings at a level between apical and basal 3/10, distinctly constricted before and behind the swellings, gently dilated in basal 3/10; disc moderately convex in basal 3/10 and forming a large callosity which is indistinctly bisinuate at anterior margin, with vestigial median depressions at the apical fifth and near the base; surface sparsely provided with relatively large punctures though partly with a few punctures near the middle of discal callosity, sparsely clothed with short pale-yellow hairs, though almost glabrous near the middle. Scutellum trapeziform, distinctly concave near middle, with reflexed sides, shagreened, pale yellow pubescent.

Elytra relatively long, longer than wide, nearly equal in length to pronotum, almost reaching apex of metepisterna, widest at humeri, moderately exposing the sides of meso- and metathoraces, EL/EW 1.13–1.16 (M 1.15); sides with humeri distinctly projected forwards, straightly convergent to apical 3/10, then arcuately rounded to apices which are slightly rounded and provided with blunt inner angles; suture completely conjoined in basal fourth, then gently arcuately dehiscent to apices; disc convex and uneven, longitudinally depressed along suture except for bases and apical raised areas, also depressed near scutellum, provided with coarse punctures though shagreened on raised parts in apical fifth, thinly pale pubescent near sides. Hind wings reaching base of abdominal tergite 6.

Meso- and metathoraces moderately voluminous, closely and strongly punctured at sides, shagreened on mesosternum, shallowly and densely punctured near middle of metasternum, clothed with silvery white recumbent hairs, partly with dense same-colored pubescence on mesepimeron, at apical part of metepisternum, middle of apical part of metasternum and along margin of hind coxa.

Abdomen elongate and slender, 0.7 times as long as body, slightly shagreened, sparsely with minute punctures on ventrites 1–2, sparsely clothed with pale yellow pubescence; ventrites 1 and 2 gently emarginate at sides and slightly thickened apicad, the former 1.45 times as long as the latter, ventrite 3 similar in shape to the preceding,

slightly shorter and more distinctly thickened apicad, ventrite 4 remarkably dilated apicad, with apex 1.8 times as wide as base, a little longer than the preceding; ventrite 5 with sides gently dilated to apical third, then narrowed to apex which is strongly arcuately emarginate, with disc longitudinally impressed along median line at a level between basal fifth and apical third, then suddenly and distinctly concave in a semicircular form. Tergite 8 a little longer than the basal width, weakly arcuately narrowed to apex which is almost truncate or shallowly emarginate.

Legs long and slender, exceeding abdominal apex at base of first hind tarsal segment; hind femur weakly clavate in apical 3/10; hind tibia gently sinuate in basal half, weakly dilated apicad; hind tarsus moderate in length, not so thick, with first segment 1.4 times as long as the following two segments combined.

Median lobe a little shorter than ventrite 5, rather broad near base though strongly narrowed apicad, slightly convex and moderately arcuate in profile; dorsal plate straightly narrowed apicad and truncate at the extremity, exposing bluntly pointed apex of ventral plate in dorsal view; ventral plate straightly narrowed apicad though weakly arcuate just behind apex which is slightly thickened; median struts short, a little less

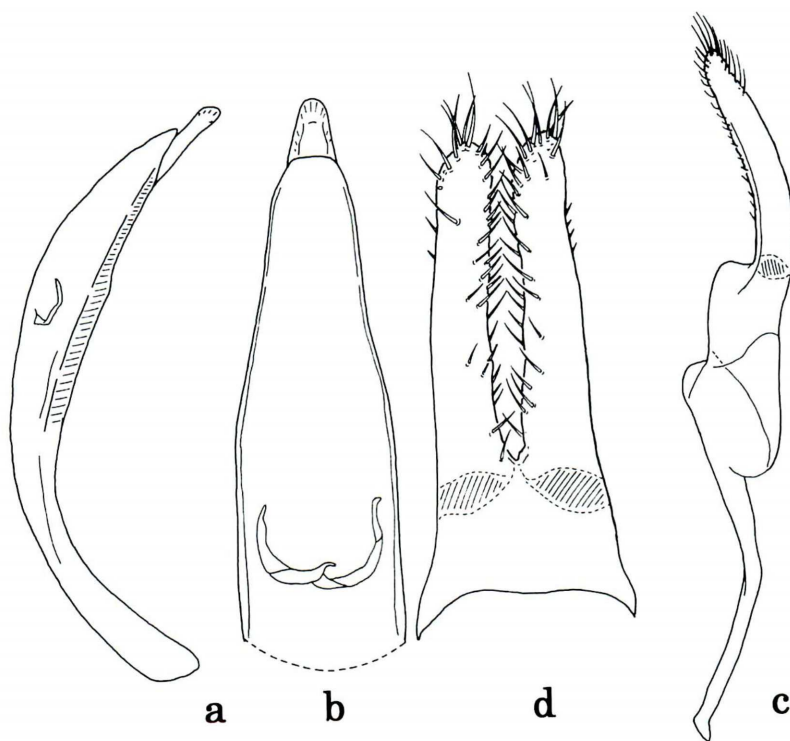


Fig. 4. Male genital organ of *Necydalis (Necydalis) montipanus* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pan (Mt.). — a, Median lobe in lateral view; b, ditto, apical part in dorsal view; c, tegmen in lateral view; d, ditto in dorsal view.

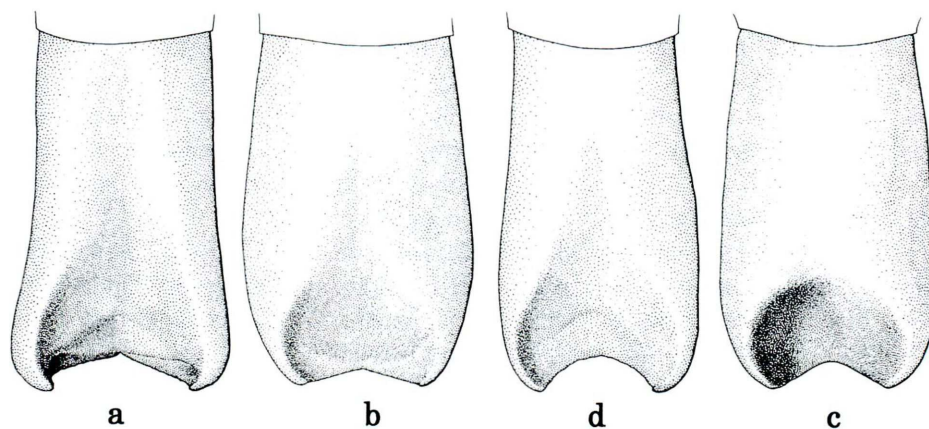


Fig. 5. Male last ventrites of four species of the *Necydalis nanshanensis* group. — a, *N. (Necydalis) atricornis* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pakan (Mt.), NE. Laos, holotype; b, *N. (N.) nanshanensis* KUSAMA, from Nanshanchi, C. Taiwan; c, *N. (N.) montipanus* NIISATO et N. OHBAYASHI, sp. nov., from Phu Pan (Mt.), NE. Laos, holotype; d, *N. (N.) shinborii* TAKAKUWA et NIISATO, from Mt. Tam Dao, N. Vietnam, paratype.

than a half the length of median lobe. Tegmen a little longer than median lobe, rather broad, slightly arcuate in profile; paramere short and slightly wide, a little more than $2/5$ the length of tegmen, with each lobe slightly divergent to apex which is rounded, provided with numerous short to medium-sized setae near apex and along inner margins.

Body length 21.5–23.5 mm.

Female. Unknown.

Type series. Holotype ♂, Phu Pan (Mt.), 1,500–1,700 m in alt., Ban Saleui, Houaphan Province of NE. Laos, 4–V–2002, N. OHBAYASHI leg. (EUEL). Paratype: 1 ♂, same locality as holotype but 5–10–V–2003, H. WAKAHARA leg. (TN).

Distribution. NE. Laos.

Notes. It is most probable that *N. montipanus* sp. nov. has a close relationship to *N. shinborii* TAKAKUWA et NIISATO of the *N. nanshanensis* group described from Mt. Tam Dao of northern Vietnam. Two species share the relatively long elytra which are always longer than wide, and provided with the small but conspicuous inner angles, the strongly dilated ventrite 4, the arcuately concave margin of ventrite 5, and unique conformation of male genital organ. It may form a species complex consisting of the two species within the *N. nanshanensis* group.

The holotype of this new species was found on the blossom of an oak tree growing at the edge of a primary forest on Phu Pan (Mt.). The paratype male specimen was caught on the peak of the same mountain.

Necydalis (Necydalis) wakaharai NIISATO et N. OHBAYASHI, sp. nov.

(Fig. 1c)

Belonging to the *N. esakii* group, and no doubt closest to *N. kumei* TAKAKUWA from northern Thailand, sharing the short fore body, elongate abdomen, and hardly sinuate sides of pronotum.

Female. Colour black in head and thoraces, brown in abdomen and appendages, moderately shiny; head almost black, brown in most of mouthparts, basal 2/3 of clypeus, mandibles except for inner margins also black; antennae brown and matted in segments 5–11, slightly paler towards distal segments, apical four segments quite yellow; thoraces and scutellum black, strongly shiny on pronotum, usually brownish on apical margin of prosternum; elytra yellowish brown, broadly black along external margins and apical parts, slightly infuscate along suture, weakly shiny; hind wings translucent dark brown; abdomen brown, shiny; legs brown, infuscate on dorsum of tarsi and apical parts of tibiae in fore and mid pairs, hind tarsi brownish, with black coxae.

Head short, slightly narrower than the maximum width of pronotum, closely and strongly punctured on frons, weakly so in the rests, moderately clothed with golden yellow pubescence, partly with dense recumbent golden yellow pubescence on frons and tempora, HW/PA 1.09–1.16 (M 1.13), HW/PW 0.90–0.93 (M 0.92); frons quadrate, with sides gently sinuate, slightly raised towards middle, with a deep distinct median longitudinal furrow, running from apical margin to posterior part of occiput, FL/FB 0.74–0.75 (M 0.74), FB/FA 1.05; clypeus with apical lobe transverse trapezoidal, truncate in margin, slightly raised and scattered with punctures in basal half, basal lobe semicircular, with a few punctures, distinctly raised, fronto-clypeal suture very deep; mandibles rather short, nearly straight at external margin though arcuate near apices; genae rather long, a little more than 3/5 the depth of lower eye-lobes, parallel-sided in frontal view; tempora strongly projected laterad, slightly exceeding beyond eyes; occiput slightly raised along midline, coarsely shagreened on surface; eyes weakly prominent. Antennae moderate in length in the *N. esakii* group, 0.52–0.54 times as long as body, slightly stout, thickened towards distal segments, somewhat flattened on segments 5–8, clothed with yellow pubescence on segments 1–4, especially dense on base of scape, and with more minute ones on the remaining segments; scape short, flattened on dorsum, hardly arcuate, slightly shorter than segment 3, provided with dense shallow punctures, segments 3 and 4 thin, slightly thickened apicad, the latter segment nearly 7/10 the length of the former, segments 5–7 nearly equal in length, segment 5 or 6 the longest, segments 7–10 somewhat serrate at apices, terminal segment simple, bluntly pointed at the extremity.

Pronotum short and relatively broad, hardly contracted to both apex and base, slightly constricted before and distinctly so behind lateral swellings, markedly convex in basal 3/5, PL/PA 1.11–1.20 (M 1.16), PL/PW 0.98–1.13 (M 1.06), PB/PA 1.11–1.20 (M 1.16), PW/EW 0.90–0.95 (M 0.92), PL/EL 0.81–0.92 (M 0.87); base almost trans-

versely truncate, very narrowly marginate, transversely grooved along margin; sides weakly arcuate in basal 3/10, gradually raised to basal 2/5 which forms lateral swellings, then rather suddenly convergent to basal constrictions, weakly arcuate in basal fifth; disc with a markedly convex callosity at a level between apical 3/5 and basal fifth, the callosity being interrupted by an indistinct median raised line, provided with a few minute punctures and a few pale short hairs, apical 3/10 weakly raised, shagreened and dense brown pubescent, and also a transverse triangular raised area along basal margin with shagreened surface, decorated with dense recumbent golden yellow pubescence at side areas, the pubescent areas slightly extending to middle of disc in apical 3/10. Scutellum trapeziform, not so wide, concave near apex, with reflexed sides, shagreened, golden yellow pubescent.

Elytra rather long in the *N. esakii* group, though shorter than pronotum, longer than wide, almost reaching apices of metepisterna, widest at humeri, moderately exposing the sides of meso- and metathoraces, EL/EW 1.05–1.16 (M 1.12); sides at humeri obliquely projected forwards, slightly convergent to middle, then gently arcuate just before apices, which are completely rounded; suture conjoined only at a short distance behind scutellum, then almost straightly and distinctly dehiscent to apices; disc convex, strongly uneven, longitudinally depressed near suture at a level between basal fourth and apical sixth, slightly depressed near scutellum, provided with large punctures, the punctures becoming sparser towards the middle, small and dense in the raised areas of apical sixth, clothed with pale hairs throughout, partly fringed with golden yellow pubescence near suture of basal 2/5 and inner sides of apical raised areas. Hind wings reaching basal part of abdominal tergite 7.

Prosternum hardly convex, coarsely shagreened, densely clothed with pale yellow hairs. Meso- and metathoraces relatively less voluminous, coarsely shagreened, densely clothed with yellow hairs, also with dense fringes of golden yellow pubescence at side of mesepisternum, on mesepimeron, basal margin and apical part of metepisternum, most of metasternum and middle of hind coxa.

Abdomen elongate and slender, 0.72–0.77 times as long as body, moderately shiny, smooth on surface, very sparsely with minute pale hairs; ventrites 1 parallel-sided, 1.6–1.7 times as long as ventrite 2, ventrite 2 distinctly dilated apicad, ventrite 3 gently arcuate at sides and nearly equal in length to the preceding, ventrite 4 moderately narrowed apicad, as long as the preceding, ventrite 5 slender and elongate, gradually narrowed apicad, with truncate apical margin.

Legs long and distinctly slender, exceeding abdominal apex at base of first hind tarsal segment; hind femur gradually and rather weakly clavate in apical third; hind tibia gently sinuate, with extremely thin base, slightly thickened apicad; hind tarsus long, with first segment hardly broadened and 2.25 times as long as the following two segments combined.

Body length 24.8–27.0 mm.

Male. Unknown.

Type series. Holotype ♀, Phu Pan (Mt.), 1,700 m in alt., Ban Saleui, Houaphan

Province of NE. Laos, N. OHBAYASHI leg. (EUEL). Paratypes: 2 ♀♀, same locality as the holotype, 2,000 m in alt., 5~10-V-2002, H. WAKAHARA leg. (TN).

Distribution. NE. Laos.

Notes. This new species belongs to the *N. esakii* group and may be most closely related to *N. kumei* TAKAKUWA from northern Thailand. Two species share the short fore body as compared with the elongate abdomen, the broad pronotum with weakly sinuate sides, the dense recumbent golden yellow pubescence on pronotum and undersides of meso- and metathoraces. However, *N. wakaharai* sp. nov. is distinct from the Thai species by the smaller head which is slightly narrower than the maximum width of pronotum across lateral swellings, the completely rounded apices of elytra, and the dense recumbent golden-yellow pubescence on pronotum not extended to the middle of base.

The flying specimen of the holotype of *N. wakaharai* sp. nov. was found on the forestry road of Phu Pan (Mt.). According to Mr. H. WAKAHARA, the other paratype specimens were collected on the peak of the same mountain.

***Necydalis (Necydalisca) concolor* NIISATO et N. OHBAYASHI, sp. nov.**

(Fig. 1d)

Medium-sized species of entirely black body provided with conspicuous silvery white pubescence beneath.

Female. Colour wholly black, dark yellowish brown only on apical margin of clypeus, labrum, maxilla and prementum, hind wings translucent blackish brown, shiny in general, somewhat shagreened or closely punctured head, pronotal base, elytra and antennae

Head slightly transverse, less voluminous, nearly as broad as the maximum width and slightly wider than the apical width of pronotum, closely provided with small punctures, clothed with yellowish pubescence, densely with similar pubescence on frons and vertex, HW/PA 1.12, HW/PW 1.04; frons distinctly transverse, with sides weakly straightly narrowed apicad, gently raised near middle, depressed at sides, a deep but narrow median longitudinal furrow running from apical margin to base of occiput, FL/FB 0.47, FB/FA 1.09; clypeus with apical lobe transverse trapezoidal, truncate at margin, moderately raised, scattered with a few punctures in basal third, basal lobe short, arcuate in base, with a few punctures, fronto-clypeal suture very deep and wide; mandibles moderately long, nearly straight at external margin, hardly arcuate even at apical parts; genae rather long, a little less than 3/5 the depth of lower eye-lobes, parallel-sided in frontal view; tempora thick, bluntly projected laterad, almost reaching external margins of eyes; occiput weakly convex posteriad, distinctly raised along posterior margins of eyes, closely and somewhat rugosely punctured; eyes not so large though well prominent laterad. Antennae relatively long in the subgenus *Necydalisca*, 0.73 times as long as body, fairly thin, weakly thickened towards distal segments, more or less flattened in segments 3–6, almost cylindrical in the remainders,

weakly shiny and clothed with brownish pubescence on segments 1–4, matted and silvery white pubescent on the remainders; scape very short, distinctly swollen, provided with small punctures on dorsum, a little less than 7/10 the length of segment 3, segments 3 and 4 shallowly punctured, gently thickened apicad, the latter segments slightly shorter than the former, segments 5–7 nearly equal in length, terminal segment weakly arcuate, bluntly pointed at the extremity.

Pronotum moderately long, narrow, weakly contracted to apex, strongly uneven at side and on disc, PL/PA 1.19, PL/PW 1.11, PB/PA 1.07, PW/EW 0.76, PL/EL 0.86; base gently arcuate, distinctly marginate; sides prominent just behind apex, straightly narrowed to apical 3/10, then moderately dilated to the lateral blunt tubercles at basal 2/5, and then moderately sinuate to basal angles; disc strongly convex, distinctly depressed along apical and basal margin, triangularly so just behind the median callosity, with a strongly convex callosity at a level between apical and basal 3/10, which is indistinctly interrupted by a shallow median furrow, and also with a triangular raised area just behind the median callosity; surface largely smooth, provided with a few small punctures at sides, coarsely and rugosely punctured on basal 3/10, rather sparsely clothed with silvery white hairs at sides and near base. Scutellum narrow trapeziform, distinctly bordered at sides, with truncate apex, densely clothed with silvery white pubescence.

Elytra very short in the subgenus *Necydalisca*, though longer than pronotum, nearly as long as wide, almost reaching apex of metepisterna, widest at humeri, slightly exposing the sides of meso- and metathoraces, EL/EW 0.98; sides with moderately prominent humeri, gently arcuate in basal fourth, then slightly and straightly convergent to roundly truncate external halves of apices whose inner angles are completely rounded; suture completely conjoined in basal fourth, narrowly dehiscent to middle, then arcuately so towards apices; disc gently convex, almost even, weakly depressed near middle, longitudinally so along suture behind scutellum, slightly raised near apices; surface closely rugosely punctured, except for almost smooth humeri, rather densely clothed with light-yellow minute pubescence.

Prosternum weakly convex, provided with transverse furrows in apical half, sparsely clothed with light yellow hairs, hardly convex, coarsely shagreened, densely clothed with light yellow hairs. Meso- and metathoraces moderately voluminous, with mesosternal process strongly raised apicad, coarsely and somewhat irregularly punctured in most parts, rugosely so on mesepisternum, densely clothed with long silvery white hairs, especially dense on mesepisternum, base and sides of metasternum and hind coxae.

Abdomen moderately long, 0.60 times as long as body, broad and flattened, slightly broadened towards ventrite 4, shagreened at sides of ventrites 3–5, scattered with a few small punctures on the rest, sparsely clothed with light yellow hairs and also with silvery white pubescence on apical sides of ventrite 1, transverse parts near apical margins of ventrites 2–3, most of ventrite 4 except for base, and basal side of ventrite 5; ventrites 5 strongly narrowed to apical fifth then almost parallel to apical

margin which is slightly emarginate.

Legs fairly long and thin in the subgenus *Necydalisca*, exceeding abdominal apex at apical third of hind tibia, with dense silvery white hairs on coxae and undersides of femora; hind femur well compressed, rather weakly clavate in apical 2/5; hind tibia quite straight, very long, gradually dilated apicad; hind tarsus very thin and rather long, with first segment 1.7 times as long as the following two segments combined.

Body length 18.2 mm.

Male. Unknown.

Type specimen. Holotype ♀, Phu Pan (Mt.), 1,500–1,700 m in alt., Ban Saleui, Houaphan Province of NE. Laos, 2–V–2002, N. OHBAYASHI leg. (EUEL).

Notes. As was noted in the introduction, *N. concolor* sp. nov. is a unique species belonging to the subgenus *Necydalisca* PLAVILSTSHIKOV. It is the first representative of the subgenus from the subtropical region of Indochina since the range of the subgenus has so far been known from the temperate to subfrigid zones in the Northern Hemisphere. The subgenus was established based upon the North Asian species, *N. eoa* PLAVILSTSHIKOV and other three species, and is characterized by the flattened body form, especially on simply broad abdomen, thin antennae with almost cylindrical segments, and transverse frons of head. Although the subgenus has been usually considered synonymous with *Necydalis* s. str., it is no doubt independent for the reason of above peculiarities.

Necydalis concolor sp. nov. is also an isolated species characterized by the entirely black body with silvery white pubescence beneath, and has no close relative within the subgenus. It is very unexpected that such a unique necydaline species belonging to *Necydalisca* was found in the warm-temperate forest of northeastern Laos. The single female specimen of this new species was found on the road under the full blossom of an oak tree. The specimen may have visited the flowers for feeding. The melliphagous behavior has been seldom known among the species of *Necydalisca*.

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要 約

新里達也・大林延夫：ラオス北東部から発見されたホソコバナカミキリ属の4新種。—— インドシナは長いあいだホソコバナカミキリ属の分布空白地帯であったが、比較的最近の調査に

よって、ベトナムから8種、さらにタイから1種の同属種が記録されている。インドシナ他地域から本属の発見が期待されていたが、私たちの最近の調査によって、ラオス北東部のハウアパン州パン山周辺から新しく4種が見出された。これらは次に示すように、基亜属のナンシャンホソコバネカミキリ種群の2種とエサキホソコバネカミキリ種群の1種、および *Necydalisca* 亜属の1種である。

1) *Necydalis (Necydalis) atricornis* NIISATO et N. OHBAYASHI, sp. nov.

ナンシャンホソコバネカミキリ種群に属し、短くまた完全に丸い先端部を備えた上翅の特徴から、台湾の *N. nanshanensis* KUSAMA や北ベトナムの *N. alpinicola* NIISATO et N. OHBAYASHI, *N. niisatoi* HOLZSCHUH などに類縁に近いものと考えられる。しかしながら、本種の触角は全体が黒色を呈し、一見してこれらの類似種との識別は容易である。パン山および隣接するパカン山の山頂の吹上げなどで採集された5雄個体が知られる。雌は未発見である。

2) *Necydalis (Necydalis) montipanus* NIISATO et N. OHBAYASHI, sp. nov.

本種もナンシャンホソコバネカミキリ種群に属するが、先端内角を備えた比較的に長い上翅、半円状に深くえぐれた腹部腹板末端節などの特徴から、北ベトナムから記録のある *N. shinborii* TAKAKUWA et NIISATO に類縁に近い。この北ベトナムの種とは、前胸背板が前方に強く狭まらず、点刻がややまばらで、触角は細く長いことなどから区別は難しくない。パン山中腹で開花中のカシの花上などで採集された2雄個体が知られている。雌は未知。

3) *Necydalis (Necydalis) wakaharai* NIISATO et N. OHBAYASHI, sp. nov.

エサキホソコバネカミキリ種群に属し、短い頭部と前胸背板に対して非常に長い腹部、前胸や中・後胸腹板などに備えた黄金色毛の縁取りなどの特徴から、タイ北部から記載された *N. kumei* TAKAKUWA に類縁に近いものと考えられる。このタイの種とは、前胸背板の最大幅より狭い頭部、前胸背板の黄金毛帯は基部中央に伸張しない、上翅先端は完全に丸められるなどの特徴から区別は難しくない。本種はパン山山道上や山頂で飛翔中の個体が採集されている。雄は未知。

4) *Necydalis (Necydalisca) concolor* NIISATO et N. OHBAYASHI, sp. nov.

今回記録されるホソコバネカミキリ属のなかで、唯一本種だけが *Necydalisca* 亜属に含まれる。本亜属の種は、北半球の温帯から亜寒帯にかけての分布が知られていたが、東洋区のインドシナから記録されるのは初めてのことである。本種は特異な種であり、体が全体に黒く、長い銀白色毛を備え、触角と肢は同亜属のなかではとりわけ長く、類縁関係の近い種はいまのところ知られていない。パン山中腹で開花中のカシの直下で採集された1雌の基準標本が知られているだけである。

Postscript

After the manuscript of the present paper had been sent to the press, we had revisited Phu Pan (Mt.) of northeastern Laos for researching the spring fauna of cerambycid beetles, and unexpectedly found additional specimens of *Necydalis atricornis* sp. nov. All the six males were found on the blossoms of *Castanopsis* tree at a higher part of the mountain at an altitude of about 1,800 m. It was surprising that the *Necydalis* adults occur in the earlier season even in such a higher place of the mountain. According to our experience in northern Vietnam, most necydaline species usually occur from



Fig. 6. Collecting sites on Phu Pan (Mt.) of northeastern Laos. — Blossoms of *Castanopsis* trees. *Necydalis atricornis* sp. nov. were usually found on the blossoms (left); a small gap made by felling in the forest. *Necydalis* species fly along the border of the forest (right).

early May at about 1,000 m in altitude, and from mid May up to 1,500 m. As shown below, all the newly collected specimens are added to the type series of *N. atricornis* sp. nov.

Supplement to the type series. Paratypes: 2 ♀♀, Phu Pan (Mt.), 1,750 m in alt., Ban Saleui, 11–IV–2004, N. OHBAYASHI leg. (EUEL); 4 ♂♂, same locality, 1,750–1,800 m in alt., 11–12–IV–2004, T. NIISATO leg. (3 ♂♂ paratypes in TN, and 1 ♂ in Toyohashi Museum of Natural History, Toyohashi). Though the additional type specimens agree well with the specimens previously examined, a large male specimen attains to 29.0 mm in body length.

Could we find more necydaline species in Laos? It is almost doubtless that our expectation will be realized. Nearly ten members including undescribed species of *Necydalis* have been collected from such a neighboring area as northern Vietnam. They belong to two subgenera, *Necydalis* s. str. and *Eonecydalis* OHBAYASHI, of which the former subgenus from northern Vietnam is provisionally classified into four species-groups, namely the groups of *N. nanshanensis*, *N. esakii*, *N. mizunumai* and *N. hirayamai*. As was recorded in the preceding pages, the two species-groups of *Necydalis* s. str., *N. nanshanensis* and *N. esakii*, and a *Necydalisca* species have so far been

found from Laos. In the course of field survey to be made in near future, we shall be able to find such unknown necydaline species as the members of the *N. mizunumai* group and the *N. hirayamai* group for the reason of faunal and geographical similarities between the two areas.

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*Other references are given in our recent collaborated paper (NIISATO & N. OHBAYASHI, 2003) and NIISATO (1998).